



1-1 • SPOTTED HORSES AND HUMAN HANDS

Pech-Merle Cave, Dordogne, France. Horses 25,000–24,000 BCE; hands c. 15,000 BCE. Paint on limestone, individual horses over 5' (1.5 m) in length.

Prehistoric Art

The detail shown at left features one of two horses, positioned back to back on the wall of a chamber within the Pech-Merle Cave, located in the Dordogne region of modern France (**FIG. 1-1**). The tapering head of this horse follows the natural shape of the rock. Black dots surround portions of its contours and fill most of its body, a striking feature that was once believed to be decorative, until DNA analysis of the remains of prehistoric horses, published in 2011, proved that one species flourishing at this time actually was spotted. In this instance, at least, prehistoric painters were painting what they saw. At a later date, a large fish (58 inches long and very difficult to see) was painted in red on top of the spots. Yet the painters left more than images of horses and fish; they left their own handprints in various places around the animals. These images, and many others hidden in chambers at the ends of long, narrow passages within the cave, connect us to an almost unimaginably ancient world of 25,000 BCE.

Prehistory includes all of human existence before the emergence of writing, and long before that people were carving objects, painting images, and creating shelters and other structures. Thirty thousand years ago our ancestors were not making “works of art” and there were no “artists” as we use the term today. They were flaking, chipping, and polishing flints into spear points, knives, and scrapers, not into sculptures, even if we find these artifacts pleasing to the

eye and to the touch. And wall paintings must have seemed equally important as these tools to their prehistoric makers, in terms of everyday survival, not visual delight.

For art historians, archaeologists, and anthropologists, prehistoric “art” provides a significant clue—along with fossils, pollen, and other artifacts—to help us understand early human life and culture. Specialists continue to discover more about when and how these works were created. In 2012, for instance, an international team of scientists used a refined dating technology known as the uranium-thorium method (see “How Early Art is Dated,” page 12) to prove that some paintings in a Spanish cave known as El Castillo are at least 40,000 years old—probably much older—raising the possibility that they could have been painted by Neanderthals rather than *Homo sapiens*.

We may never know exactly why these prehistoric paintings were made. In fact, there may be no single meaning or use for any one image on a cave wall; cave art probably meant different things to the different people who saw it, depending on their age, their experience, or their specific needs and desires. And the sculpture, paintings, and structures that survive are but a tiny fraction of what must have been created over a very long time span. The conclusions and interpretations we draw from them are only hypotheses, making prehistoric art one of the most speculative, but dynamic and exciting, areas of art history.

LEARN ABOUT IT

- 1.1** Explore the variety of styles, techniques, and traditions represented by what remains of prehistoric art and architecture, and probe its technical, formal, and expressive character.
- 1.2** Survey the principal themes, subjects, and symbols in prehistoric painting, sculpture, and objects.
- 1.3** Investigate how art historians and anthropologists have speculated on the cultural meanings of works for which there is no written record to provide historical context.
- 1.4** Grasp the concepts and vocabulary used to describe and characterize prehistoric art and architecture.

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THE STONE AGE

How and when modern humans evolved is the subject of ongoing debate, but anthropologists now agree that the species called *Homo sapiens* appeared about 400,000 years ago, and that the subspecies to which we belong, *Homo sapiens sapiens* (usually referred to as modern humans), evolved as early as 120,000 years ago. Based on archaeological evidence, it is now clear that modern humans spread from Africa across Asia, into Europe, and finally to Australia and the Americas. This vast movement of people took place between 100,000 and 35,000 years ago.

Scholars began the systematic study of prehistory only about 200 years ago. Nineteenth-century archaeologists, struck by the wealth of stone tools, weapons, and figures found at ancient sites, named the whole period of early human development the Stone Age. Today, researchers divide the Stone Age into two parts: Paleolithic (from the Greek *paleo*-, “old,” and *lithos*, “stone”) and Neolithic (from the Greek *neo*-, “new”). They divide the Paleolithic period itself into three phases reflecting the relative position of objects found in the layers of excavation: Lower (the oldest), Middle, and Upper (the most recent). In some places archaeologists



1-2 • RAINBOW SERPENT ROCK
Western Arnhem Land, Australia.

Appearing in Australia as early as 6000 BCE, images of the Rainbow Serpent play a role in rituals and legends of the creation of human beings, the generation of rains, storms, and floods, and the reproductive power of nature and people.

can identify a transitional, or Mesolithic (from the Greek *meso*-, “middle”) period.

The dates for the transition from Paleolithic to Neolithic vary with geography and with local environmental and social circumstances. For some of the places discussed in this chapter, such as Western Europe, the Neolithic way of living did not emerge until 3000 BCE; in others, such as the Near East, it appeared as early as 8000 BCE. Archaeologists mark time in so many years ago, or BP (“before present”). However, to ensure consistent style throughout the book, which reflects the usage of art historians, this chapter uses BCE (before the Common Era) and CE (the Common Era) to mark time.

Much is yet to be discovered about prehistoric art. In Australia, some of the world’s very oldest images have been dated to between 50,000 and 40,000 years ago, and the tradition of transient communities who marked the land in complex, yet stunningly beautiful ways continues into historical time. In western Arnhem Land (**FIG. 1-2**), rock art images of the Rainbow Serpent have their origins in prehistory, and were perhaps first created during times of substantial changes in the environment. Africa, as well, is home to ancient rock art in both its northern and southern regions. In all cases, archaeologists associate the arrival of modern humans in these regions with the advent of image making.

Indeed, it is the cognitive capability to create and recognize symbols and imagery that sets us as modern humans apart from all our predecessors and from all our contemporary animal relatives. We are defined as a species by our abilities to make and understand art. This chapter focuses primarily on the rich traditions of prehistoric European art from the Paleolithic and Neolithic periods and into the Bronze Age (**MAP 1-1**). Later chapters consider the prehistoric art of other continents and cultures, such as China (Chapter 11) and sub-Saharan Africa (Chapter 14).

THE PALEOLITHIC PERIOD

Human beings made tools long before they made what today we call “art.” Art, in the sense of image making, is the hallmark of the Upper Paleolithic period and the emergence of our subspecies, *Homo sapiens sapiens*. Representational images appear in the archaeological record beginning about 38,000 BCE in Australia, Africa, and Europe. Before that time, during the Lower Paleolithic period in Africa, early humans made tools by flaking and chipping (knapping) flint pebbles into blades and scrapers with sharp edges. Dating to 2.5 million years ago, the earliest objects made by our human ancestors were simple stone tools, some with sharp edges, that were used to cut animal skin and meat and bash open bones to reveal the marrow, and also to cut wood and soft plant materials. These first tools have been found at sites such as Olduvai Gorge in Tanzania. Although not art, they document a critical development in our evolution: humans’ ability to transform the world around them into specific tools and objects that could be used to complete a task.



MAP 1-1 • PREHISTORIC EUROPE

As the Ice Age glaciers receded, Paleolithic, Neolithic, Bronze Age, and Iron Age settlements increased from south to north.

By 1.65 million years ago, significant changes in our ancestors' cognitive abilities and manual dexterity can be seen in sophisticated stone tools, such as the teardrop-shaped hand-axes (**FIG. 1-3**) that have been found at sites across Eurasia. These extraordinary objects, symmetrical in form and produced by a complex multistep process, were long thought of as nothing more than tools (or perhaps even as weapons), but the most recent analysis suggests that they had a social function as well. Some sites (as at Olorgesailie in Kenya) contain hundreds of hand-axes, far more than would have been needed in functional terms, suggesting that they served to announce an individual's skills, status, and standing in his or her community. Although these ancient hand-axes are clearly not art in the representational sense, it is important to see them in terms of performance and process. These concepts, so central to modern Western art, have deep prehistoric roots.

Evolutionary changes took place over time and by 400,000 years ago, during the late Middle Paleolithic period, a *Homo sapiens* subspecies called Neanderthal inhabited Europe. Its members used a wider range of stone tools and may have carefully buried their dead with funerary offerings. Neanderthals survived for thousands of years and overlapped with modern humans. *Homo sapiens sapiens*, which had evolved and spread out of Africa some 300,000 years after the Neanderthals, eventually replaced them, probably between 38,000 and 33,000 BCE.

Critical cognitive abilities set modern humans apart from all their predecessors; indeed *Homo sapiens sapiens*, as a species, outlasted Neanderthals precisely because they had the mental capacity to solve problems of human survival. The new cognitive abilities included improvements in recognizing and benefiting from variations in the natural environment, and in managing



1-3 • PALEOLITHIC HAND-AXE

From Isimila Korongo, Tanzania. 60,000 years ago. Stone, height 10" (25.4 cm).



1-4 • DECORATED OCHER

From Blombos Cave, southern Cape coast, South Africa. 75,000 years ago.

social networking and alliance making—skills that enabled organized hunting. The most important new ability, however, was the capacity to think symbolically: to create representational analogies between one person, animal, or object, and another, and to recognize and remember those analogies. This cognitive development marks the evolutionary origin of what we call art.

The world's earliest examples of art come from South Africa: two 77,000-year-old, engraved blocks of red ocher (probably used as crayons) found in the Blombos Cave (**FIG. 1-4**). Both blocks are engraved in an identical way with cross-hatched lines on their sides. Archaeologists argue that the similarity of the engraved patterns means these two pieces were intentionally made and decorated following a common pattern. Thousands of fragments of ocher have been discovered at Blombos and there is little doubt that people were using it to draw patterns and images, the remains of which have long since disappeared. Although it is impossible to prove, it is highly likely that the ocher was used to decorate peoples' bodies as well as to color objects such as tools or shell ornaments. Indeed, in an earlier layer on the same site, archaeologists uncovered more than 36 shells, each of which had been perforated so that it could be hung from a string or thong, or attached to clothing or a person's hair; these shells would have been used to decorate the body. An ostrich eggshell bead came from the same site and would have served the same purpose. The Blombos finds are enormously important. Here our early ancestors, probably modern humans but possibly even their predecessors, used the earth's raw materials to decorate themselves with jewelry (made of shells) and body art (using the ocher).

SHELTER OR ARCHITECTURE?

"Architecture" usually refers to the enclosure of spaces with some aesthetic intent. People may object to its use in connection with prehistoric improvisations, but building even a simple shelter requires a degree of imagination and planning deserving of the name "architecture." In the Upper Paleolithic period, humans in some regions used great ingenuity to build shelters that were far from simple. In woodlands, evidence of floors indicates that our ancestors built circular or oval huts of light branches and hides that measured as much as 15–20 feet in diameter. (Modern tents to accommodate six people vary from 10- by 11-foot ovals to 14- by 7-foot rooms.)

In the treeless grasslands of Upper Paleolithic Russia and Ukraine, builders created settlements of up to ten houses using the bones of the now extinct woolly mammoth, whose long, curving tusks made excellent roof supports and arched door openings (**FIG. 1-5**). This bone framework was probably covered with animal hides and turf. Most activities centered around the inside fire



1-5 • RECONSTRUCTION DRAWING OF MAMMOTH-BONE HOUSES
Ukraine. c. 16,000–10,000 BCE.



pit, or hearth, where food was prepared and tools were fashioned. Larger houses might have had more than one hearth, and spaces were set aside for specific uses—working stone, making clothing, sleeping, and dumping refuse. Inside the largest dwelling on a site in Mezhirich, Ukraine, archaeologists found 15 small hearths that still contained ashes and charred bones left by the last occupants. Some people also colored their floors with powdered ochre in shades that ranged from yellow to red to brown. These Upper Paleolithic structures are important because of their early date: The widespread appearance of durable architecture concentrated in village communities did not occur until the beginning of the Neolithic period in the Near East and southeastern Europe.

ARTIFACTS OR WORKS OF ART?

As early as 30,000 BCE small figures, or figurines, of people and animals made of bone, ivory, stone, and clay appeared in Europe and Asia. Today we interpret such self-contained, three-dimensional pieces as examples of **sculpture in the round**. Prehistoric carvers also produced relief sculpture in stone, bone, and ivory. In **relief sculpture**, the surrounding material is carved away to form a background that sets off the projecting figure.

THE LION-HUMAN An early and puzzling example of a sculpture in the round is a human figure—probably male—with a feline head (**FIG. 1-6**), made about 30,000–26,000 BCE. Archaeologists excavating at Hohlenstein-Stadel, Germany, found broken pieces of ivory (from a mammoth tusk) that they realized were parts of an entire figure. Nearly a foot tall, this remarkable statue surpasses most early figurines in size and complexity. Instead of copying

1-6 • LION-HUMAN

From Hohlenstein-Stadel, Germany. c. 30,000–26,000 BCE. Mammoth ivory, height 11 $\frac{1}{8}$ " (29.6 cm). Ulmer Museum, Ulm, Germany.

ART AND ITS CONTEXTS | The Power of Naming

Words are only symbols for ideas, and it is no coincidence that the origins of language and of art are often linked in human evolutionary development. But the very words we invent—or our ancestors invented—reveal a certain view of the world and can shape our thinking. Today, we exert the power of naming when we select a name for a baby or call a friend by a nickname. Our ideas about art can also be affected by names, even the ones used for captions in a book. Before the twentieth century, artists usually did not name, or title, their works. Names were eventually supplied by the works' owners or by art historians writing about them, and thus often express the cultural prejudices of the labelers or of the times in which they lived.

An excellent example of such distortion is the naming of the hundreds of small prehistoric statues of women that have been found. Earlier scholars called them by the Roman name Venus. For example,

the sculpture in FIGURE 1-7 was once called the *Venus of Willendorf* after the place where it was found. Using the name of the Roman goddess of love and beauty sent a message that this figure was associated with religious belief, that it represented an ideal of womanhood, and that it was one of a long line of images of “classical” feminine beauty. In a short time, most similar works of sculpture from the Upper Paleolithic period came to be known as Venus figures. The name was repeated so often that even experts began to assume that the statues had to be fertility figures and Mother Goddesses, although there is no proof that this was so.

Our ability to understand and interpret works of art responsibly and creatively is easily compromised by distracting labels. Calling a prehistoric figure a woman instead of Venus encourages us to think about the sculpture in new and different ways.

what he or she saw in nature, the carver created a unique creature, part human and part beast. Was the figure intended to represent a person wearing a ritual lion mask? Or has the man taken on

the appearance of an animal? Archaeologists now think that the people who lived at this time held very different ideas (from our twenty-first-century ones) about what it meant to be a human and how humans were distinct from animals; it is quite possible that they thought of animals and humans as parts of one common group of beings who shared the world. What is absolutely clear is that the Lion-Human shows highly complex thinking and creative imagination: the uniquely human ability to conceive and represent a creature never seen in nature.



1-7 • WOMAN FROM WILLENDORF
Austria. c. 24,000 BCE. Limestone, height 4 $\frac{3}{8}$ " (11 cm).
Naturhistorisches Museum, Vienna.

FEMALE FIGURES While a number of figurines representing men have been found recently, most human figures from the Upper Paleolithic period are female. The most famous of these, the **WOMAN FROM WILLENDORF** (FIG. 1-7), Austria, dates from about 24,000 BCE (see “The Power of Naming,” above). Carved from limestone and originally colored with red ocher, the statuette’s swelling, rounded forms make it seem much larger than its actual 4 $\frac{3}{8}$ -inch height. The sculptor exaggerated the figure’s female attributes by giving it pendulous breasts, a big belly with a deep navel (a natural indentation in the stone), wide hips, dimpled knees and buttocks, and solid thighs. By carving a woman with a well-nourished body, the artist may have been expressing health and fertility, which could ensure the ability to produce strong children, thus guaranteeing the survival of the clan.

The most recent analysis of the Paleolithic female sculptures, however, has replaced the traditional emphasis on fertility with more nuanced understandings of how and why the human figure is represented in this way, and who may have had these kinds of objects made. According to archaeologist Clive Gamble, these little sculptures were subtle forms of nonverbal communication among small isolated groups of Paleolithic people spread out across vast regions. Gamble noted the tremendous (and unusual) similarity in the shapes of figures, even those found in widely distant parts of Europe. He suggested that when groups of Paleolithic



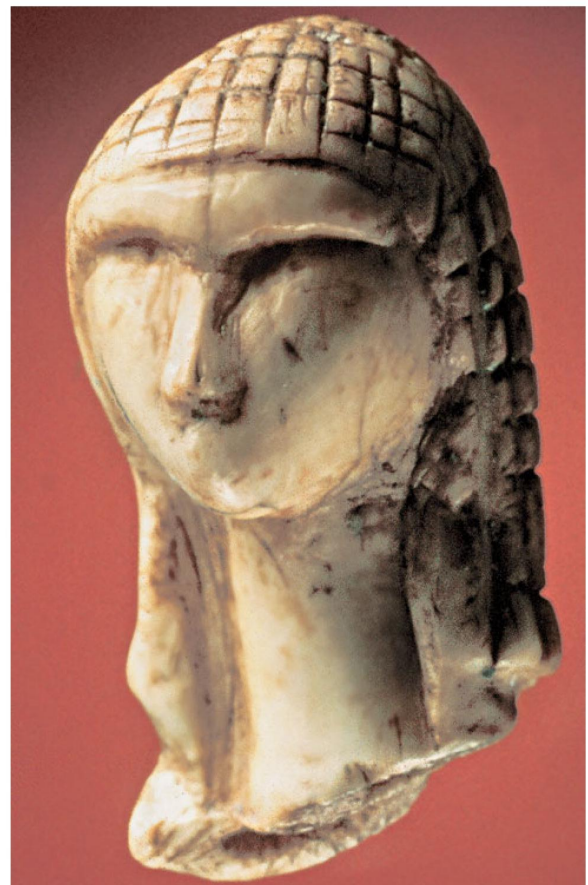
1-8 • WOMAN FROM DOLNÍ VĚSTONICE
Moravia, Czech Republic. 23,000 BCE. Fired clay, 4¼" × 17⁄16"
(11 × 4.3 cm). Moravske Museum, Brno, Czech Republic.

hunter-gatherers did occasionally meet up and interact, the female statues may have been among several signature objects that signaled whether a group was friendly and acceptable for interaction and, probably, for mating. As symbols, these figures would have provided reassurance of shared values about the body, and their size would have demanded engagement at a close personal level. It is not a coincidence, then, that the largest production of these types of Paleolithic figurine occurred during a period when climatic conditions were at their worst and the need for interaction and alliance building would have been at its greatest.

Another figure, found in the Czech Republic, the **WOMAN FROM DOLNÍ VĚSTONICE** (FIG. 1-8), takes our understanding of these objects further still. The site of Dolní Věstonice is important because it marks a very early date (23,000 BCE) for the use of fire to make durable objects out of mixtures of water and soil. What makes the figures from this site and those from other sites in the region (Pavlov and Předměstí) unusual is their method of manufacture. By mixing the soil with water—to a very particular recipe—and then placing the wet figures in a hot kiln to bake, the makers were not intending to create durable, well-fired statues. On the contrary, the recipe used and the firing procedure followed indicate that the intention was to make the figures explode in the kilns before the firing process was complete, and before a “successful” figure could be produced. Indeed, the finds at these sites support this interpretation: There are very few complete figures,

but numerous fragments that bear the traces of explosions at high temperatures. The Dolní Věstonice fragments are records of performance and process art in their rawest and earliest forms.

Another remarkable female image, discovered in the Grotte du Pape in Brassempouy, France, is the tiny ivory head known as the **WOMAN FROM BRASSEMPOUY** (FIG. 1-9). Though the finders did not record its archaeological context, recent studies prove it to be authentic and date it as early as 30,000 BCE. The carver captured the essence of a head, or what psychologists call the memory image—those generalized elements that reside in our standard memory of a human head. An egg shape rests on a long neck. A wide nose and strongly defined browline suggest deep-set eyes, and an engraved square patterning may be hair or a head-dress. The image is an abstraction (what has come to be known as **abstract art**): the reduction of shapes and appearances to basic yet recognizable forms that are not intended to be exact replications of nature. The result in this case looks uncannily modern to contemporary viewers. Today, when such a piece is isolated in a museum case or as a book illustration we enjoy it as an aesthetic object, but we lose its original cultural context.



1-9 • WOMAN FROM BRASSEMPOUY
Grotte du Pape, Brassempouy, Landes, France. Probably
c. 30,000 BCE. Ivory, height 1¼" (3.6 cm). Musée des Antiquités
Nationales, Saint-Germain-en-Laye, France.

TECHNIQUE | Prehistoric Wall Painting

In a dark cave, working by the light of an animal-fat lamp, artists chew a piece of charcoal to dilute it with saliva and water. Then they blow out the mixture on the surface of a wall, using their hands as stencils. This drawing demonstrates how cave archaeologist Michel Lorblanchet and his assistant used the step-by-step process of the original makers of a cave painting at Pech-Merle (see FIG. 1-1) in France to create a complex design of spotted horses.

By turning himself into a human spray can, Lorblanchet produced clear lines on the rough stone surface much more easily than he could with a brush. To create the line of a horse's back, with its clean upper edge and blurry lower one, he blows pigment below his hand. To capture its angular rump, he places his hand vertically against the wall, holding it slightly curved. To produce the sharpest lines, such as those of the upper hind leg and tail, he places his hands side by side and blows between them. To create the forelegs and the hair on the horses' bellies, he fingerpaints. A hole punched in a piece of leather serves as a stencil for the horses' spots. It took Lorblanchet only 32 hours to reproduce the Pech-Merle painting of spotted horses, his speed suggesting that a single artist created the original (perhaps with the help of an assistant to mix pigments and tend the lamp).

Homo sapiens sapiens artists used three painting techniques: the spraying demonstrated by Lorblanchet; drawing with fingers or blocks of ocher; and daubing with a paintbrush made of hair or moss. In some places in prehistoric caves three stages of image creation can be seen: engraved lines using flakes of flint, followed by a color wash of ocher and manganese, and a final engraving to emphasize shapes and details.



CAVE PAINTING

Art in Europe entered a rich and sophisticated phase well before 40,000 years ago, when images began to be painted on the walls of caves in central and southern France and northern Spain. No one knew of the existence of prehistoric cave paintings until one day in 1879, when a young girl, exploring with her father in Altamira in northern Spain, crawled through a small opening in the ground and found herself in a chamber whose ceiling was covered with painted animals (see FIG. 1-13). Her father, a lawyer and amateur archaeologist, searched the rest of the cave, told authorities about the remarkable find, and published his discovery the following year. Few people believed that these amazing works could have been made by “primitive” people, and the scientific community declared the paintings a hoax. They were accepted as authentic only in 1902, after many other cave paintings, drawings, and engravings had been discovered at other places in northern Spain and in France.

THE MEANING OF CAVE PAINTINGS What caused people to paint such dramatic imagery on the walls of caves? The idea that human beings have an inherent desire to decorate themselves and their surroundings—that an aesthetic sense is somehow innate to the human species—found ready acceptance in the nineteenth century. Many believed that people create art for the sheer love of beauty. Scientists now agree that human beings have an aesthetic impulse, but the effort required to accomplish the great cave paintings suggests their creators were motivated by more than simple visual pleasure (see “Prehistoric Wall Painting,” above). Since the discovery at Altamira, anthropologists and art

historians have devised several hypotheses to explain the existence of cave art. Like the search for the meaning of prehistoric female figurines, these explanations depend on the cultural views of those who advance them.

In the early twentieth century, scholars believed that art has a social function and that aesthetics are culturally relative. They proposed that the cave paintings might be products both of rites to strengthen clan bonds and of ceremonies to enhance the fertility of animals used for food. In 1903, French archaeologist Salomon Reinach suggested that cave paintings were expressions of sympathetic magic: the idea, for instance, that a picture of a reclining bison would ensure that hunters found their prey asleep. Abbé Henri Breuil took these ideas further and concluded that caves were used as places of worship and were the settings for initiation rites. During the second half of the twentieth century, scholars rejected these ideas and rooted their interpretations in rigorous scientific methods and current social theory. André Leroi-Gourhan and Annette Laming-Emperaire, for example, dismissed the sympathetic magic theory because statistical analysis of debris from human settlements revealed that the animals used most frequently for food were not the ones traditionally portrayed in caves.

Researchers continue to discover new cave images and to correct earlier errors of fact or interpretation. A study of the Altamira Cave in the 1980s led anthropologist Leslie G. Freeman to conclude that the artists had faithfully represented a herd of bison during the mating season. Instead of being dead, asleep, or disabled—as earlier observers had thought—the animals were dust-wallowing, common behavior during the mating season. Similar thinking has led to a more recent interpretation of cave art by archaeologist

Steve Mithen. In his detailed study of the motifs of the art and its placement within caves, Mithen argued that hoofprints, patterns of animal feces, and hide colorings were recorded and used as a “text” to teach novice hunters within a group about the seasonal appearance and behavior of the animals they hunted. The fact that so much cave art is hidden deep in almost inaccessible parts of caves—indeed, the fact that it is placed within caves at all—suggested to Mithen that this knowledge was intended for a privileged group and that certain individuals or groups were excluded from acquiring that knowledge.

South African rock-art expert David Lewis-Williams has suggested a different interpretation. Using a deep comparative knowledge of art made by hunter-gatherer communities that are still in existence, Lewis-Williams argued that Upper Paleolithic cave art is best understood in terms of shamanism: the belief that certain people (shamans) can travel outside of their bodies in order to mediate between the worlds of the living and the spirits. Traveling under the ground as a spirit, particularly within caves, or conceptually within the stone walls of the cave, Upper Paleolithic shamans would have participated in ceremonies that involved hallucinations. Images conceived during this trancelike state would likely combine recognizable (the animals) and abstract (the nonrepresentational) symbols. In addition, Lewis-Williams interprets the stenciled human handprints found on the cave walls (see FIG. 1-1) as traces of the nonshaman participants in the ritual reaching toward and connecting with the shaman spirits traveling within the rock.

Although the hypotheses that seek to explain cave art have changed and evolved over time, there has always been agreement that decorated caves must have had a special meaning because people returned to them time after time over many generations, in some cases over thousands of years. Perhaps Upper Paleolithic cave art was the product of rituals intended to gain the favor of the supernatural. Perhaps because much of the art was made deep inside the caves and nearly inaccessible, its significance may have had less to do with the finished painting than with the very act of creation. Artifacts and footprints (such as those found at Chauvet, below, and Le Tuc d'Audoubert, see FIG. 1-14) suggest that the subterranean galleries, which were far from living quarters, had a religious or magical function. Perhaps the experience of exploring the cave may have been significant to the image-makers. Musical instruments, such as bone flutes, have been found in the caves, implying that even acoustical properties may have had a role to play.

CHAUVET One of the earliest known sites of prehistoric cave paintings, discovered in December 1994, is the Chauvet Cave (called after one of the persons who found it) near Vallon-Pont-d'Arc in southeastern France. It is a tantalizing trove of hundreds of paintings (FIG. 1-10). The most dramatic of the images depict grazing, running, or resting animals, including wild horses, bison, mammoths, bears, panthers, owls, deer, aurochs, woolly rhinoceroses, and wild goats (or ibex). Also included are occasional humans, both male and female, many handprints, and hundreds



1-10 • WALL PAINTING WITH HORSES, RHINOCEROSES, AND AUROCHS
Chauvet Cave. Vallon-Pont-d'Arc, Ardèche Gorge, France. c. 32,000–30,000 BCE. Paint on limestone.

 **Watch** a video about cave painting on myartslab.com

of geometric markings such as grids, circles, and dots. Footprints in the Chauvet Cave, left in soft clay by a child, go to a “room” containing bear skulls. The charcoal used to draw the rhinos has been radiocarbon-dated to 32,410 years old (± 720 years).

LASCAUX The best-known cave paintings are those found in 1940 at Lascaux, in the Dordogne region of southern France (see FIGS. 1-11, 1-12). They have been dated to about 15,000 BCE. Opened to the public after World War II, the prehistoric “museum” at Lascaux soon became one of the most popular tourist sites in France. Too popular, because the visitors brought heat, humidity, exhaled carbon dioxide, and other contaminants. The cave was closed to the public in 1963 so that conservators could battle an aggressive fungus. Eventually they won, but instead of reopening the site, the authorities created a facsimile of it. Visitors at what is called Lascaux II may now view copies of the paintings without harming the precious originals.

The scenes they view are truly remarkable. Lascaux has about 600 paintings and 1,500 engravings. In the **HALL OF BULLS** (FIG. 1-11), the Lascaux painters depicted cows, bulls, horses, and deer along the natural ledges of the rock, where the smooth white limestone of the ceiling and upper wall meets a rougher surface below. They also utilized the curving wall to suggest space. The animals appear singly, in rows, face to face, tail to tail, and even painted on top of one another. Their most characteristic features

have been emphasized. Horns, eyes, and hooves are shown as seen from the front, yet heads and bodies are rendered in profile in a system known as a **composite pose**. The animals are full of life and energy, and the accuracy in the drawing of their silhouettes, or outlines, is remarkable.

Painters worked not only in large caverns, but also far back in the smallest chambers and recesses, many of which are almost inaccessible today. Small stone lamps found in such caves—over 100 lamps have been found at Lascaux—indicate that the artists worked in flickering light obtained from burning animal fat. Although 1 pound of fat would burn for 24 hours and produce no soot, the light would not have been as strong as that created by a candle.

One scene at Lascaux was discovered in a remote setting on a wall at the bottom of a 16-foot shaft that contained a stone lamp and spears. The scene is unusual because it is the only painting in the cave complex that seems to tell a story (FIG. 1-12), and it is stylistically different from the other paintings at Lascaux. A figure who could be a hunter, greatly simplified in form but recognizably male and with the head of a bird or wearing a bird’s-head mask, appears to be lying on the ground. A great bison looms above him. Below him lie a staff, or baton, and a spear-thrower (*atlatl*)—a device that allowed hunters to throw farther and with greater force—the outer end of which has been carved in the shape of a bird. The long, diagonal line slanting across the bison’s hindquarters may be



1-11 • HALL OF BULLS

Lascaux Cave. Dordogne, France. c. 15,000 BCE. Paint on limestone, length of largest auroch (bull) 18' (5.50 m).



1-12 • BIRD-HEADED MAN WITH BISON
Shaft scene in Lascaux Cave. c. 15,000 BCE. Paint on limestone, length approx. 9' (2.75 m).

a spear. The bison has been disemboweled and will soon die. To the left of the cleft in the wall a woolly rhinoceros seems to run off. Why did the artist portray the man as only a sticklike figure when the bison was rendered with such accurate detail? Does the painting illustrate a story or a myth regarding the death of a hero? Is it a record of an actual event? Or does it depict the vision of a shaman?

ALTAMIRA The cave paintings at Altamira, near Santander in the Cantabrian Mountains in Spain—the first to be discovered and attributed to the Upper Paleolithic period—have been recently dated to about 12,500 BCE (see “How Early Art is Dated,” page 12). The Altamira artists created sculptural effects by painting over and around natural irregularities in the cave walls and ceilings. To produce the herd of bison on the ceiling of the main cavern (**FIG. 1-13**), they used rich red and brown ochre to paint the large areas of the animals’ shoulders, backs, and flanks, then sharpened the contours of the rocks and added the details of the legs, tails, heads, and horns in black and brown. They mixed yellow and brown from iron-based ochre to make the red tones, and they derived black from manganese or charcoal.



1-13 • BISON
Ceiling of a cave at Altamira, Spain. c. 12,500 BCE. Paint on limestone, length approx. 8'3" (2.5 m).

CAVE SCULPTURES

Caves were sometimes adorned with relief sculpture as well as paintings. At Altamira, an artist simply heightened the resemblance of a natural projecting rock to a similar and familiar animal form. Other reliefs were created by modeling, or shaping, the damp clay of the cave’s floor. An excellent example of such work in clay (dating to 13,000 BCE) is preserved at Le Tuc d'Audoubert, south of the Dordogne region of France. Here the sculptor created two bison leaning against a ridge of rock (**FIG. 1-14**). Although the beasts are modeled in very high relief (they extend well forward from the background), they display the same conventions as in earlier painted ones, with emphasis on the broad masses of the meat-bearing flanks and

RECOVERING THE PAST | How Early Art is Dated

Since the first discoveries at Altamira, archaeologists have developed increasingly sophisticated ways of dating cave paintings and other excavated objects. Today, they primarily use two approaches to determine an artifact's age. **Relative dating** relies on the chronological relationships among objects in a single excavation or among several sites. If archaeologists have determined, for example, that pottery types A, B, and C follow each other chronologically at one site, they can apply that knowledge to another site. Even if type B is the only pottery present, it can still be assigned a relative date. **Absolute dating**, on the other hand, aims to determine a precise span of calendar years in which an artifact was created.

The most accurate method of absolute dating is **radiometric dating**, which measures the degree to which radioactive materials have disintegrated over time. Used for dating organic (plant or animal) materials—including some pigments used in cave paintings—one radiometric method measures a carbon isotope called radiocarbon, or carbon-14, which is constantly replenished in a living organism. When an organism dies, it stops absorbing carbon-14 and starts to lose its store of the isotope at a predictable rate. Under the right circumstances, the amount of carbon-14 remaining in organic material can tell us how long ago an organism died.

This method has serious drawbacks for dating works of art. Using carbon-14 dating on a carved antler or wood sculpture shows only when

the animal died or when the tree was cut down, not when the artist created the work using those materials. Also, some part of the object must be destroyed in order to conduct this kind of test—something that is never desirable in relation to works of art. For this reason, researchers frequently test organic materials found in the same context as the work of art rather than sacrificing part of the work itself. Radiocarbon dating is most accurate for materials no more than 30,000 to 40,000 years old.

Potassium-argon dating, which measures the decay of a radioactive potassium isotope into a stable isotope of argon, an inert gas, is most reliable with materials over a million years old. **Uranium-thorium dating** measures the decay of uranium into thorium in the deposits of calcium carbonate that cover the surfaces of cave walls, to determine the minimum age of paintings under the crust. **Thermo-luminescence dating** measures the irradiation of the crystal structure of a material subjected to fire, such as pottery, and the soil in which it is found, determined by the luminescence produced when a sample is heated. **Electron spin resonance** techniques involve using a magnetic field and microwave irradiation to date a material such as tooth enamel and the soil around it.

Recent experiments have helped to date cave paintings with increasing precision. Radiocarbon analysis has determined, for example, that the animal images at Lascaux are 17,000 years old—to be more precise, 17,070 years, plus or minus 130 years.

shoulders. To make the animals even more lifelike, their creator engraved short parallel lines below their necks to represent their shaggy coats. Numerous small footprints found in the clay floor of this cave suggest that important group rites took place here.



1-14 • BISON

Le Tuc d'Audoubert, France. c. 13,000 BCE. Unbaked clay, length 25" (63.5 cm) and 24" (60.9 cm).

THE NEOLITHIC PERIOD

Today, advances in technology, medicine, transportation, and electronic communication change human experience in a generation. Many thousands of years ago, change took place much more slowly. In the tenth millennium BCE the world had already entered the present interglacial period, and our modern climate was taking shape. The world was warming up, and this affected the distribution, density, and stability of plant and animal life as well as marine and aquatic resources. However, the Ice Age ended so gradually and unevenly among regions that people could not have known what was happening.

One of the fundamental changes that took place in our prehistoric past was in the relationship people had with their environment. After millennia of established interactions between people and wild plants and animals—ranging from opportunistic foraging to well-scheduled gathering and collecting—people gradually started to exert increasing control over the land and its resources. Seen from the modern

perspective, this change in economy (archaeologists use “economy” to refer to the ways people gathered or produced food) seems abrupt and complete. Different communities adopted and adapted new sets of technologies, skills, and plant and animal species that allowed them to produce food. This was the origin of plant and animal domestication. Wheat and barley were cultivated; sheep, goats, cattle, and pigs were bred. This new economy appeared at different rates and to varying degrees of completeness in different parts of the Near East and Europe, and no community relied exclusively on the cultivation of plants or on breeding animals. Instead they balanced hunting, gathering, farming, and animal breeding in order to maintain a steady food supply.

ARCHITECTURE

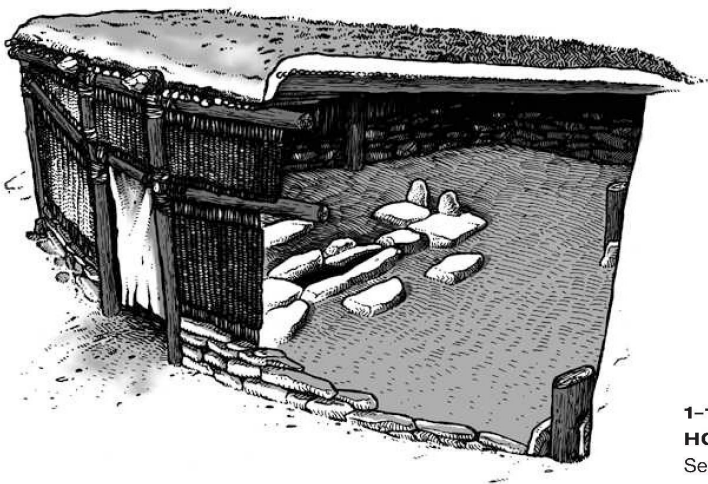
At the same time as these new food technologies and species appeared, people began to establish stronger, more lasting connections to particular places in the landscape. The beginnings of architecture in Europe are marked by the building of human social environments made up of simple but durable structures constructed of clay, mud, dung, and straw interwoven among wooden posts. While some of these buildings were simple huts, used for no more than a season at a time, others were much more substantial, with foundations made of stone, set into trenches, and supporting walls of large timbers. Some were constructed from simple bricks made of clay, mud, and straw, shaped in rectangular molds and then dried in the sun. Regardless of the technique used, the result was the same: people developed a new attachment to the land, and with settlement came a new kind of social life.

At the site of Lepenski Vir, on the Serbian bank of the Danube River, rows of trapezoidal buildings made of wooden posts, branches, mud, and clay—set on stone foundations and with stone-faced hearths—face the river from which the inhabitants took large fish (FIG. 1-15). Although this site dates to between 6300 and 5500 BCE, there is little evidence for the domestication of plants and animals that might be expected at this time in association with

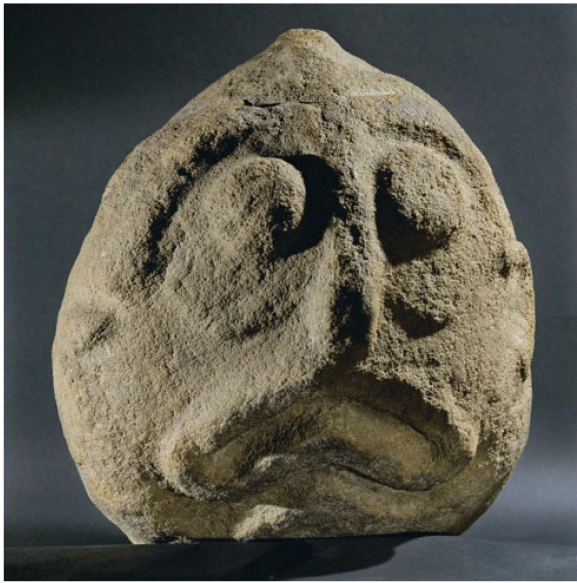
an architectural settlement. Archaeologists found human burials under the floors of these structures, as well as in the spaces between individual buildings. In some houses extraordinary art was found, made of carefully pecked and shaped river boulders (FIG. 1-16). Some of the boulders appear to represent human forms. Others look more like fish. A few seem to consist of mixtures of human and fish features. Here we have a site with a confusing combination of architecture with a nondomesticated economy, very distinctive art, and many burials. Archaeologists interpret such sites as temporary habitations where people carried out special rites and activities linked to death and to the natural and wild worlds. In such settlements, art played a role.

In some places early architecture was dramatic and long-lasting, with the repeated building—sometimes over 1,000 years or more—of house upon house in successive architectural generations, resulting in the gradual rise of great mounds of villages referred to as tells or mound settlements. A particularly spectacular example is Çatalhöyük (Chatal Huyuk) in the Konya Plain in central Turkey where the first traces of a village date to 7400 BCE in the early Neolithic period. The oldest part of the site consists of many densely clustered houses separated by areas of rubbish. They were made of rectangular mud bricks held together with mortar; walls, floors, and ceilings were covered with plaster and lime-based paint and were frequently replastered and repainted (see “A Closer Look,” page 15). The site was large and was home to as many as 3,000 people at any one time. Beyond the early date of the site and its size and population, the settlement at Çatalhöyük is important to the history of art for two reasons: the picture it provides of the use of early architecture and the sensational art that has been found within its buildings.

Archaeologists and anthropologists often assume that the decision to create buildings such as the houses at Neolithic sites came from a universal need for shelter from the elements. However, as suggested by the special nature of the activities at Lepenski Vir, recent work at Çatalhöyük also shows clearly that while structures did provide shelter, early houses had much more significant functions for the communities of people who lived in them. For the Neolithic people of Çatalhöyük, their houses were the key component of their worldview. Most importantly, they became an emblem of the spirit and history of a community. The building of house upon house created a historical continuity that outlasted any human lifetime; indeed, some house-rebuilding sequences lasted many hundreds of years. And the seasonal replastering and repainting of walls and floors only enhanced the sense of long-term continuity that made these buildings



1-15 • RECONSTRUCTION DRAWING OF LEPENSKI VIR HOUSE/SHRINE
Serbia. 6000 BCE.



1-16 • HUMAN-FISH SCULPTURE
From Lepenski Vir, Serbia. c. 6300–5500 BCE.

history-makers. In fact, Ian Hodder, the director of excavations at Çatalhöyük, and his colleagues call some of them “history houses” and have found no evidence to suggest that they were shrines or temples as earlier interpreters had mistakenly concluded.

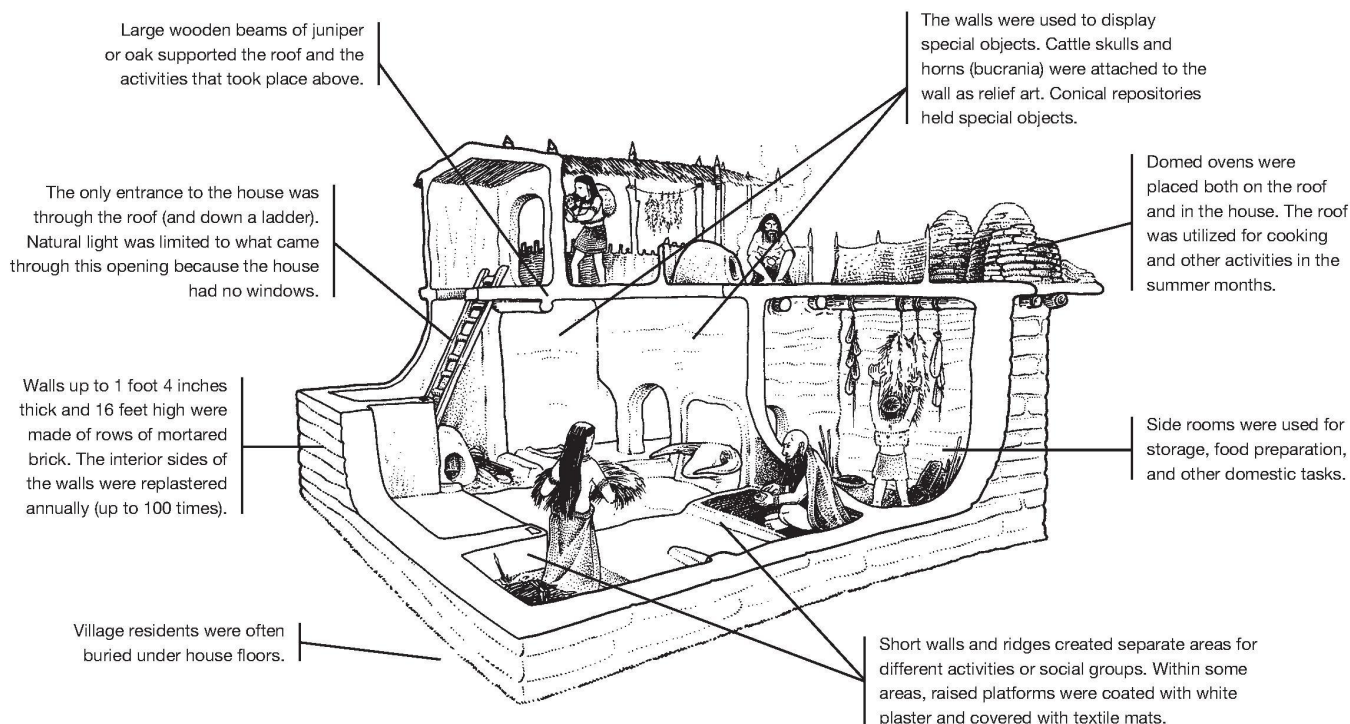
As at Lepenski Vir, the dead were buried under the floors of many of the buildings at Çatalhöyük, so the site connected the community’s past, present, and future. While there were no burials in some houses, a few contained between 30 and 60 bodies (the average is about six per house), and one had 62 burials, including people who had lived their lives in other parts of the village. Periodically, perhaps to mark special community events and ceremonies, people dug down into the floors of their houses and removed the heads of the long-deceased, then buried the skulls in new graves under the floors. Skulls were also placed in the foundations of new houses as they were built and rebuilt, and in other special deposits around the settlement. In one extraordinary burial, a deceased woman holds in her arms a man’s skull that had been plastered and painted. Perhaps it, too, had been removed from an earlier underfloor grave.



1-17 • MEN TAUNTING A DEER (?)
Detail of a wall painting from Çatalhöyük, Turkey. c. 6000 BCE. Museum of Anatolian Civilization, Ankara, Turkey.

A CLOSER LOOK | A House in Çatalhöyük

Reconstruction drawing, Turkey, 7400–6200 BCE.



 **View** the Closer Look for the house in Çatalhöyük on myartslab.com

The houses of Çatalhöyük were powerful places not only because of the (literal) depths of their histories, but also because of the extraordinary art that decorated their interiors. Painted on the walls of some of the houses are violent and wild scenes. In some, humans are represented without heads as if they had been decapitated. Vultures or other birds of prey appear huge next to them, and narratives seem to highlight dangerous interactions between people and animals. In one painting (**FIG. 1-17**), a huge, horned wild animal (probably a deer) is surrounded by small humans who are jumping or running; one of them is pulling on something sticking out of the deer's mouth, perhaps its tongue. There is an emphasis on maleness: some of the human figures are bearded and the deer has an erect penis. Archaeologists have interpreted this scene as a dangerous game or ritual of baiting and taunting a wild animal. In other paintings, people hunt or tease boars or bulls. Conservation of the wall paintings is highly complex, and since many of the most dramatic examples were excavated before modern preservation techniques existed, we must rely on the archaeologist's narrative descriptions or quick field sketches.

Other representations of wild animals are modeled in relief on the interior walls, most frequently the heads and horns of bulls. In

some houses, people placed boar tusks, vulture skulls, and fox and weasel teeth under the floors; in at least one case, they dug into previous house generations to retrieve the plastered and painted heads of bulls.

Sites such as Lepenski Vir and Çatalhöyük have forced archaeologists to think in new ways about the role of architecture and art in prehistoric communities (see "Intentional House Burning," page 16). Critically, the mixture of shelter, architecture, art, spirit, ritual, and ceremony at these and many other Neolithic settlements makes us realize that we cannot easily distinguish between "domestic" and "sacred" architecture. This point re-emerges from the recent work at Stonehenge in England (see page 17). In addition, the clear and repeated emphasis on death, violence, wild animals, and male body parts at Çatalhöyük has challenged traditional interpretations of the Neolithic worldview that concentrated on representations of the female body, human fertility, and cults of the Mother Goddess.

Most Neolithic architectural sites were not as visually sensational as Çatalhöyük. At the site of Sesklo in northern Greece, dated to 6500 BCE, people built stone-based, long-lasting structures (**FIG. 1-18**) in one part of a village and less substantial mud, clay,

ART AND ITS CONTEXTS | Intentional House Burning

While much research has focused on the origins and construction technology of the earliest architecture—as at Çatalhöyük, Lepenski Vir, and other sites—some of the most exciting new work has come from studies of how Neolithic houses were destroyed. Excavations of settlements dating to the end of the Neolithic period in eastern and central Europe commonly reveal a level of ash and other evidence for great fires that burned down houses at these sites. The common interpretation had been that invaders, coming on horseback from Ukraine and Russia, had attacked these villages and burned the settlements.

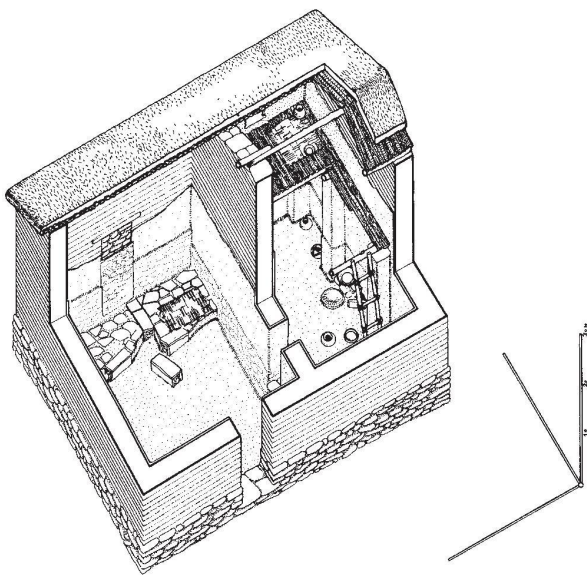
In one of the most innovative recent studies, Mira Stevanović and Ruth Tringham employed the methods of modern forensic science and meticulously reconstructed the patterns of Neolithic house

conflagrations. The results proved that the fires were not part of village-wide destructions, but were individual events, confined to particular houses. Most significantly, they showed that each fire had been deliberately set. In fact, in order to get the fires to consume the houses completely, buildings had been stuffed with combustibles before they were set alight. Repeated tests by experimental archaeologists have supported these conclusions. Each intentional, house-destroying fire was part of a ritual killing of the house and a rupture of the historical and social entity that the house had represented for the community. Critically, even in their destruction, prehistoric buildings played important and complex roles in relation to the ways that individuals and communities created (and destroyed) social identities and continuities.

and wood buildings in another part. The stone-based buildings may have had a special function within the community—whether ritual, crafts-based, or political is difficult to determine. Since they were rebuilt again and again over a long period of time, the part of the village where they were located “grew” vertically into a mound or tell. Some buildings had easily recognizable functions, such as a place for making ceramic vessels. The distinction between the area of the longer-lasting, often rebuilt buildings and the more temporary structures is clear in the style of architecture as well as in the quality of artifacts found. Finer, decorated pottery is more abundant in the former.

In different regions of Europe, people created architecture in different ways. The crowded buildings of Çatalhöyük differed from the structures at Sesklo, and these differed from the trapezoidal

huts at Lepenski Vir. To the northwest, in Germany and central Europe, Neolithic villages typically consisted of three or four long timber buildings, each up to 150 feet long, housing 45 to 50 people. The structures were rectangular, with a row of posts down the center supporting a **ridgepole**, a long horizontal beam against which the slanting roof poles were braced (see example 4 in “Early Construction Methods,” page 19). The walls were probably made of **wattle and daub** (see example 5 in “Early Construction Methods”) and roofed with **thatch**, plant material such as reeds or straw tied over a framework of poles. These houses also included large granaries, or storage spaces for the harvest; some buildings contain sections for animals and for people. Around 4000 BCE, Neolithic settlers began to locate their communities at defensible sites—near rivers, on plateaus, or in swamps. For additional protection, they also frequently surrounded their settlements with wooden walls, earth embankments, and ditches.



1-18 • SESKLO STONE-FOUNDATION HOUSE
Sesklo, northern Greece. 6500 BCE.

CEREMONIAL AND TOMB ARCHITECTURE In western and northern Europe, people erected huge stones to build ceremonial structures and tombs. In some cases, they had to transport these great stones over long distances. The monuments thus created are examples of what is known as **megalithic** architecture, the descriptive term derived from the Greek words for “large” (*mega-*) and “stone” (*lithos*).

Archaeologists disagree about the nature of the societies that created these monuments. Some believe they reflect complex, stratified societies in which powerful religious or political leaders dictated the design of these monuments and inspired (and coerced) large numbers of people to contribute their labor to such engineering projects. Skilled “engineers” would have devised the methods for shaping, transporting, and aligning the stones. Other interpreters argue that these massive monuments are clear evidence for shared collaboration within and between groups, with people working together on a common project, the successful completion of which fueled social cohesion in the absence of a powerful individual.



1-19 • TOMB INTERIOR WITH CORBELING AND ENGRAVED STONES
Newgrange, Ireland. c. 3000–2500 BCE.

Many of these megalithic structures are associated with death. Most recent interpretations stress the role of death and burial as fundamental, public performances in which individual and group identity, cohesion, and dispute were played out. In this reasoning, death and its rituals are viewed as theater, with the deceased as well as grave goods perceived as props, the monument as a stage, the celebrants and mourners as actors, and the entire event proceeding in terms of an (unwritten) script with narrative and plot.

Elaborate megalithic tombs first appeared in the Neolithic period. Some were built for single burials; others consisted of multiple burial chambers. The simplest type was the **dolmen**, built on the post-and-lintel principle (see examples 1 and 2 in “Early Construction Methods,” page 19). The tomb chamber was formed of huge upright stones supporting one or more tablelike rocks, or **capstones**. The structure was then mounded over with smaller rocks and dirt to form a **cairn** or artificial hill. A more imposing type of structure was the **passage grave**, in which narrow, stone-lined passageways led into a large room at the center.

At Newgrange, in Ireland, the mound of an elaborate passage grave (FIG. 1-19) originally stood 44 feet high and measured about 280 feet in diameter. The mound was built of sod and river pebbles and was set off by a circle of engraved standing stones around its

perimeter. Its passageway, 62 feet long and lined with standing stones, leads into a three-part chamber with a corbel **vault** (an arched structure that spans an interior space) rising to a height of 19 feet (see example 3 in “Early Construction Methods,” page 19). Some of the stones are engraved with linear designs, mainly rings, spirals, and diamond shapes. These patterns may have been marked out using strings or compasses, then carved by picking at the rock surface with tools made of antlers. Recent detailed analysis of the art engraved on passage graves like Newgrange, but also at Knowth in Ireland, suggest that the images are entoptic (meaning that their significance and function relate to the particularities of perception by the eye), and that we should understand them in terms of the neuropsychological effect they would have had on people visiting the tomb. These effects may have included hallucinations. Archaeologists argue that key entoptic motifs were positioned at entrances and other important thresholds inside the tomb, and that they played important roles in ritual or political ceremonies that centered

around death, burial, and the commemoration and visitation of the deceased by the living.

STONEHENGE Of all the megalithic monuments in Europe, the one that has stirred the imagination of the public most strongly is **STONEHENGE**, on Salisbury Plain in southern England (FIGS. 1-20, 1-21). A **henge** is a circle of stones or posts, often surrounded by a ditch with built-up embankments. Laying out such circles with accuracy would have posed no particular problem. Architects likely relied on the human compass, a simple but effective surveying method that persisted well into modern times. All that is required is a length of cord either cut or knotted to mark the desired radius of the circle. A person holding one end of the cord is stationed in the center; a coworker, holding the other end and keeping the cord taut, steps off the circle’s circumference. By the time of Stonehenge’s construction, cords and ropes were readily available.

Stonehenge is not the largest such circle from the Neolithic period, but it is one of the most complex, with eight different phases of construction and activity starting in 3000 BCE during the Neolithic period, and stretching over a millennium and a half through the Bronze Age. The site started as a cemetery of cremation burials



1-20 • STONEHENGE FROM THE AIR

Salisbury Plain, Wiltshire, England. c. 2900–1500 BCE.

 **View** the Closer Look for Stonehenge on myartslab.com

marked by a circle of bluestones. Through numerous sequences of alterations and rebuildings, it continued to function as a domain of the dead. Between 2900 and 2600 BCE, the bluestones were rearranged into an arc. Around 2500 BCE, a circle of sarsen stones was used to create the famous appearance of the site—sarsen is a gray sandstone—and the bluestones were rearranged within the sarsens. The center of the site was now dominated by a horseshoe-shaped

arrangement of five sandstone trilithons, or pairs of upright stones topped by **lintels**. The one at the middle stood considerably taller than the rest, rising to a height of 24 feet, and its lintel was more than 15 feet long and 3 feet thick. This group was surrounded by the so-called sarsen circle, a ring of sandstone uprights weighing up to 26 tons each and averaging 13 feet 6 inches tall. This circle, 106 feet in diameter, was capped by a continuous lintel. The uprights taper slightly toward the top, and the gently curved lintel sections were secured by **mortise-and-tenon** joints, that is, joints made by a conical projection at the top of each upright that fits like a peg into a hole in the lintel. Over the next thousand years people continued to alter the arrangement of the bluestones and cremation burials continued in pits at the site.

The differences in the types of stone used in the different phases of construction are significant. The use of bluestone in the early phases (and maintained and rearranged through the sequence) is particularly important. Unlike the sarsen stone, bluestone was not locally available and would have been transported over 150 miles from the west, where it had been quarried in the mountains of west Wales. The means of transporting the bluestones such distances remains a source of great debate. Some argue that they were floated around the coast on great barges; others hold that they traveled over land on wooden rollers. Regardless of the means of transport, the use of this distant material tells us that the people who first transformed the Stonehenge landscape into a ceremonial site probably also had their ancestral origins in the west. By bringing the bluestones and using them in the early Stonehenge cemetery, these migrants made a powerful connection with their homelands.

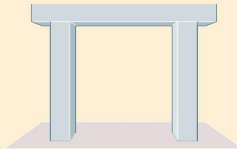


1-21 • STONEHENGE FROM THE GROUND

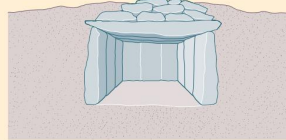
ELEMENTS OF ARCHITECTURE | Early Construction Methods

Of all the methods for spanning space, **post-and-lintel** construction is the simplest. At its most basic, two uprights (posts) support a horizontal element (lintel). There are countless variations, from the wood structures, dolmens, and other underground burial chambers of prehistory, to Egyptian and Greek stone construction, to medieval timber-frame buildings, and even to cast-iron and steel construction. Its limitation as a space spanner is the degree of tensile strength of the lintel material: the more flexible, the greater the span possible. Another early method for

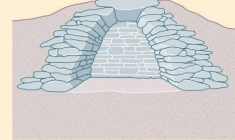
creating openings in walls and covering space is **corbeling**, in which rows or layers of stone are laid with the end of each row projecting beyond the row beneath, progressing until opposing layers almost meet and can then be capped with a stone that rests across the tops of both layers. The walls of early buildings were often created by the stones or posts used to support the covering, but they could be made of what is known as wattle and daub—branches woven in a basketlike pattern, then covered with mud or clay.



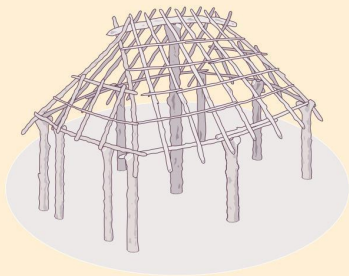
1. Post and lintel



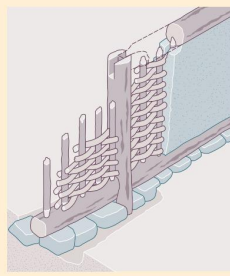
2. Cross section of post-and-lintel underground burial chamber



3. Cross section of corbelled underground burial chamber




4. Wood-post framing of prehistoric structure

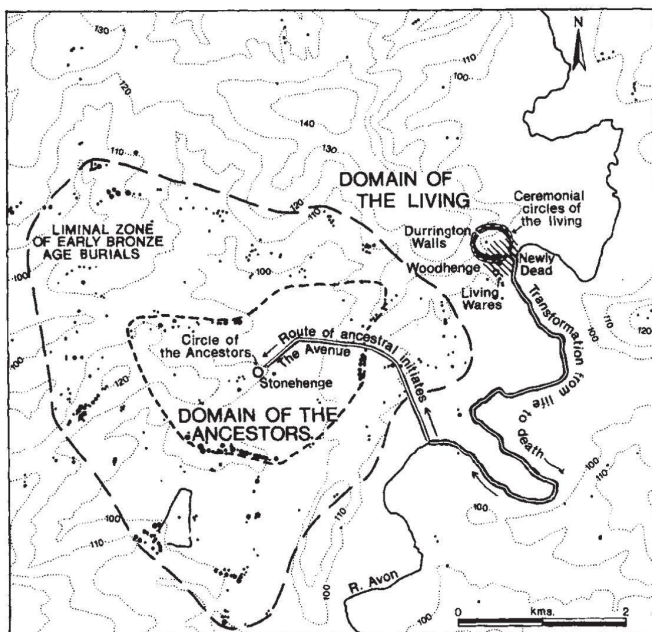


5. Neolithic wattle-and-daub walls, Thessaly, Greece, c. 6000 BCE



6. Granite post-and-lintel construction, Valley Temple of Khafre, Giza, Egypt, c. 2500 BCE

 **Watch** an architectural simulation about post-and-lintel construction on myartslab.com



Through the ages, many theories have been advanced to explain Stonehenge. In the Middle Ages, people thought that Merlin, the legendary magician of King Arthur, had built it. Later, the site was erroneously associated with the rituals of the Celtic druids (priests). Because it is oriented in relation to the movement of the sun, some people have argued that it may have been an observatory or that it had special importance as a calendar for regulating early agricultural schedules. Today, none of these ideas is supported by archaeologists and the current evidence.

We now believe that Stonehenge was the site of ceremonies linked to death and burial. This theory has been constructed from evidence that looks not only at the stone circles but also at the nearby sites dating from the periods when Stonehenge was in use (FIG. 1-22). A new generation of archaeologists, led by Mike Parker Pearson, has pioneered this contextual approach to the puzzle of Stonehenge.

1-22 • PLAN OF STONEHENGE AND ITS SURROUNDING SETTLEMENTS

TECHNIQUE | Pottery and Ceramics

The terms pottery and ceramics may be used interchangeably—and often are. Because it covers all baked-clay wares, **ceramics** is technically a more inclusive term than pottery. Pottery includes all baked-clay wares except **porcelain**, which is the most refined product of ceramic technology.

Pottery vessels can be formed in several ways. It is possible, though difficult, to raise up the sides from a ball of raw clay. Another method is to coil long rolls of soft, raw clay, stack them on top of each other to form a container, and then smooth them by hand. A third possibility is simply to press the clay over an existing form, a dried gourd for example. By about 4000 BCE, Egyptian potters had developed the potter's wheel, a round, spinning platform on which a lump of clay is placed and then formed with the fingers while rotating, making it relatively simple to produce a uniformly shaped vessel in a very short time. The potter's wheel appeared in the ancient Near East about 3250 BCE and in China about 3000 BCE.

After forming, a pot is allowed to dry completely before it is fired. Special ovens for firing pottery, called **kilns**, have been discovered at prehistoric sites in Europe dating from as early as 26,000 BCE (as at Dolní Věstonice). For proper firing, the temperature must be maintained at a relatively uniform level. Raw clay becomes porous pottery when heated to at least 500° Centigrade. It then holds its shape permanently and will not disintegrate in water. Fired at 800° Centigrade, pottery is technically known as **earthenware**. When subjected to temperatures between 1,200° and 1,400° Centigrade, certain stone elements in the clay vitrify, or become glassy, and the result is a stronger type of ceramic called **stoneware**.

Pottery is relatively fragile, and new vessels were constantly in demand to replace broken ones, so fragments of low-fired ceramics—fired at the hearth, rather than the higher-temperature kiln—are the most common artifacts found in excavations of prehistoric settlements. Pottery fragments, or **potsherds**, serve as a major key in dating sites and reconstructing human living and trading patterns.

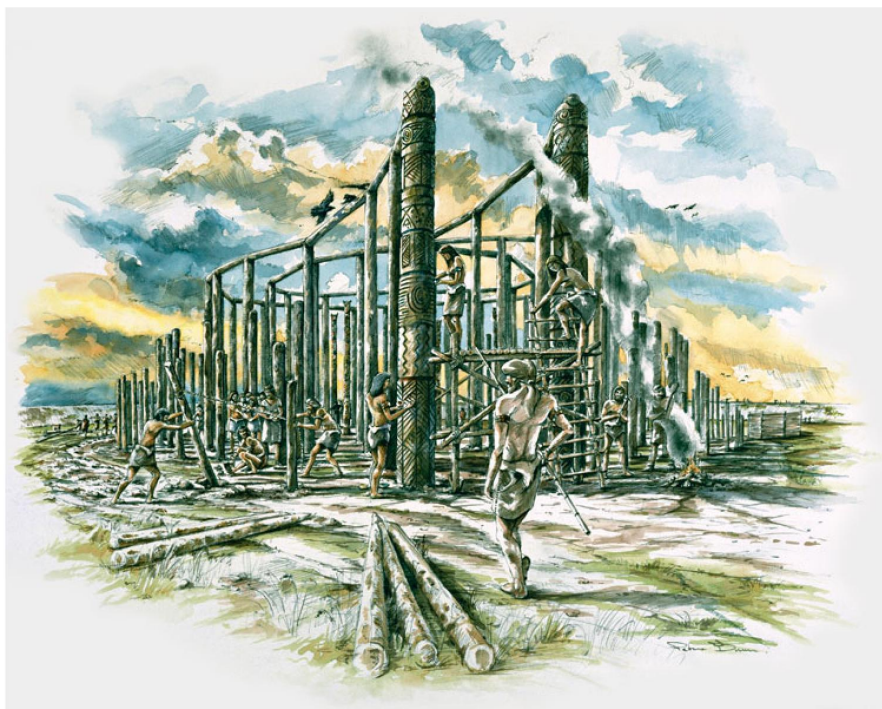
The settlements built near Stonehenge follow circular layouts, connecting them in plan to the ceremonial site (**FIG. 1-23**). Unlike the more famous monument, however, these habitations were built of wood, in particular large posts and tree trunks. A mile from Stonehenge is Durrington Walls, which was a large inhabited settlement (almost 1,500 feet across) surrounded by a ditch. Inside are a number of circles—made not from stone but from wood—and

many circular houses constructed with wooden posts. The rubbish left behind at this and similar sites provides archaeologists with insights into the lives of the inhabitants. Chemical analysis of animal bone debris, for example, indicates that the animals consumed came from great distances before they were slaughtered, and therefore that the people who stayed here had come from regions far removed from the site.

Significantly, both Stonehenge and Durrington Walls are connected to the Avon River by banked avenues. These connected the worlds of the living (the wood settlement) with the domain of the dead (the stone circle). Neolithic people would have moved between these worlds as they walked the avenues, sometimes bringing the deceased to be buried or cremated, other times approaching the stone circle for ceremonies and rituals dedicated to the memories of the deceased and the very ancient ancestors. The meaning of Stonehenge therefore rests within an understanding of the larger landscape that contained not only other ritual sites but also sites of habitation.

SCULPTURE AND CERAMICS

In addition to domestic and ceremonial architecture and a food-producing economy, the other critical component of the Neolithic way of life was



1-23 • RECONSTRUCTION DRAWING OF DURRINGTON WALLS

The settlement at Durrington Walls, near Stonehenge, southern England. 2600 BCE.

the ability to make ceramic vessels (see “Pottery and Ceramics,” opposite). This “pot revolution” marked a shift from a complete reliance on skin, textile, and wooden containers to the use of pots made by firing clay. Pottery provided a new medium of extraordinary potential for shaping and decorating durable objects. Ceramic technology emerged independently, at different times, across the globe, with the earliest examples being produced by the Jomon culture of hunter-gatherers in Japan in 12,000 BCE (FIG. 1-24). It is extremely difficult to determine with certainty why pottery was first invented or why subsequent cultures adopted it. The idea that pottery would only emerge out of farming settlements is confounded by the example of the Jomon. Rather, it seems that there was no one set of social, economic, or environmental circumstances that led to the invention of ceramics.

It is likely that the technology for producing ceramics evolved in stages. Archaeologist Karen Vitelli’s detailed studies of the early Neolithic site of Franchthi Cave in Greece have shown that pottery making at this site started with an experimental stage during which nonspecialist potters produced a small number of pots. These early pots were used in ceremonies, especially those where medicinal or narcotic plants were consumed (FIG. 1-25). Only later did specialist potters share manufacturing recipes to produce enough pots for standard activities such as cooking and eating. A similar pattern may have occurred in other early potting communities.

In addition to firing clay to make pots, cups, pitchers, and large storage containers, Neolithic people made thousands of miniature figures of humans. While it was once thought that these figurines



1-24 • EARLY POTTERY FROM JAPAN'S JOMON CULTURE
12,000 BCE.



1-25 • EARLY POTTERY FROM THE FRANCHTHI CAVE, GREECE
6500 BCE.

refer to fertility cults and matriarchal societies, archaeologists now agree that they had many different functions—for example, as toys, portraits, votives. More importantly, specialists have shown that there are great degrees of similarity in figurine shape and decoration within distinct cultural regions. Such regional similarities, and the huge numbers of Neolithic figurines that would have been in circulation at any one place and time, have convinced experts that the critical significance of these objects is that they mark the emergence of the human body as the core location of human identity. Thus, the central role the body has played in the politics, philosophy, and art, of historical and modern times began over 8,000 years ago with Neolithic figurines.

Neolithic figures of humans were most numerous and diverse in central and eastern Europe (see “Prehistoric Woman and Man,” page 22), but in the Near Eastern site of ‘Ain Ghazal in modern Jordan, archaeologist Gary Rollefson found 32 extraordinary **HUMAN FIGURES** (FIG. 1-27). Dated to 6500 BCE and constructed by covering bundled-twig cores with layers of plaster, the statues were found in two pits. One contained 12 busts and 13 full figures, and in the other were two full figures, two fragmental busts, and three figures with two heads. These statues, each about 3 feet tall, are disturbing for many modern viewers, especially the startlingly stylized faces. The eyes—made with cowrie shells outlined with bitumen (a natural asphalt), also used to represent pupils—are wide open, giving the figures a lifelike appearance. Nostrils are also clearly defined, even exaggerated, but the mouths are discreet and tight-lipped. Clothes and other features were painted on the bodies. The powerful legs and feet are clearly modeled independently with plaster, but the strangely spindly arms and tiny, tapering hands cling closely to the body, as if inert. The impression is of living, breathing individuals who are unable (or unwilling) to gesture or speak.

A BROADER LOOK | Prehistoric Woman and Man

For all we know, the person who created these figurines at around 4500 BCE (FIG. 1-26) had nothing particular in mind—people had been modeling clay figures in southeastern Europe for a long time. Perhaps a woman who was making cooking and storage pots out of clay amused herself by fashioning images of the people she saw around her. But because these figures were found in the same grave in Cernavodă, Romania, they suggest to us an otherworldly message.

The woman, spread-hipped and big-bellied, sits directly on the ground, expressive of the mundane world. She exudes stability and fecundity. Her ample hips and thighs seem

to ensure the continuity of her family. But in a lively, even elegant, gesture, she joins her hands coquettishly on one raised knee, curls up her toes, and tilts her head upward. Though earthbound, is she a spiritual figure communing with heaven? Her upwardly tilted head could suggest that she is watching the smoke rising from the hearth, or worrying about holes in the roof, or admiring hanging containers of laboriously gathered drying berries, or gazing adoringly at her partner. The man is rather slim, with massive legs and shoulders. He rests his head on his hands in a brooding, pensive pose, evoking thoughtfulness. Or is it weariness, boredom, or sorrow?

We can interpret the Cernavodă woman and man in many ways, but we cannot know what they meant to their makers or owners. Depending on how they are displayed, we spin out different stories about them, broadening the potential fields of meaning. When they are set facing each other, or side by side as they are here, we tend to think of them as a couple—a woman and man in a relationship. In fact, we do not know whether the artist conceived of them in this way, or even made them at the same time. For all their visual eloquence, their secrets remain hidden from us, but it is difficult not to speculate.



1-26 • FIGURES OF A WOMAN AND A MAN

From Cernavodă, Romania. c. 4500 BCE. Ceramic, height 4½" (11.5 cm). National History Museum, Bucharest.



1-27 • HUMAN FIGURE

From 'Ain Ghazal, Jordan. 6500 BCE. Fired lime plaster with cowrie shell, bitumen, and paint, height approx. 35" (90 cm). National Museum, Amman, Jordan.

Scholars have searched for clues about the function of these figures. The people who lived in 'Ain Ghazal built and rebuilt their houses, replastered walls, and buried their dead under house floors—they even dug down through the floors to retrieve the skulls of long-deceased relatives—just like the inhabitants of Çatalhöyük. They used the same plaster to coat the walls of their houses and to make the human figures. The site also contains buildings that may have served special, potentially ceremonial functions, and some suggest that the figures are linked to these rites. In addition to the figures' lifelike appearance, the similarity between the burial of bodies under house floors and the burial of the plaster figures in pits is striking. At the same time, however, there are significant differences: the statues are buried in groups while the human

bodies are not; the statues are buried in pits, not in houses; and the eyes of the statues are open, as if they are alive and awake. In the current state of research, it is difficult to know with certainty how the figures of 'Ain Ghazal were used and what they meant to the people who made them.

NEW METALLURGY, ENDURING STONE

The technology of metallurgy is closely allied to that of ceramics. Although Neolithic culture persisted in northern Europe until about 2000 BCE (and indeed all of its key contributions to human evolution—farming, architecture, and pottery—continue through present times), the age of metals made its appearance in much of Europe about 3000 BCE. In central and southern Europe, and in the Aegean region, copper, gold, and tin had been mined, worked, and traded even earlier. Smelted and cast copper beads and ornaments dated to 4000 BCE have been discovered in Poland.

Metals were first used for ornamentation. Gold was one of the first metals to be used in prehistory, used to make jewelry (ear, lip, and nose rings) or to ornament clothing (appliqués sewn onto fabric). Toward the end of the Neolithic, people shaped simple beads by cold-hammering malachite, a green-colored, copper carbonate mineral that can be found on the surface of the ground in many regions.

Over time, the objects made from gold and copper became more complicated and technologies of extraction (the mining of copper in Bulgaria) and of metalworking (casting copper) improved. Ivan Ivanov discovered some of the most sensational (and earliest) prehistoric gold and copper objects in the late Neolithic cemetery at Varna on Bulgaria's Black Sea coast. While the cemetery consisted of several hundred graves of men, women, and children, a few special burials contained gold and copper artifacts (FIGS. 1-28, 1-29). Objects such as gold-covered scepters, bracelets, beads, arm rings, lip-plugs, and copper axes and chisels distinguish the graves of a small number of adult males, and in a very few of them, no skeleton was present. Instead, the body was represented by a clay mask richly decorated with gold adornments (see FIG. 1-28) and the grave contained extraordinary concentrations of metal and special marine-shell ornaments. As in other prehistoric contexts, death and its attendant ceremonies were the focus for large and visually expressive displays of status and authority.

THE BRONZE AGE

The period that followed the introduction of metalworking is commonly called the Bronze Age. Although copper is relatively abundant in central Europe and in Spain, objects fashioned from it are too soft to be functional and therefore usually have a ceremonial or representational use and value. However, bronze—an alloy, or mixture, of tin and copper—is a stronger, harder substance with a wide variety of uses.



1-28 • GOLD-ADORNED FACE MASK

From Tomb 3, Varna I, Bulgaria. Neolithic, 3800 BCE. Terra cotta and gold. Archaeological Museum, Plovdiv, Bulgaria.

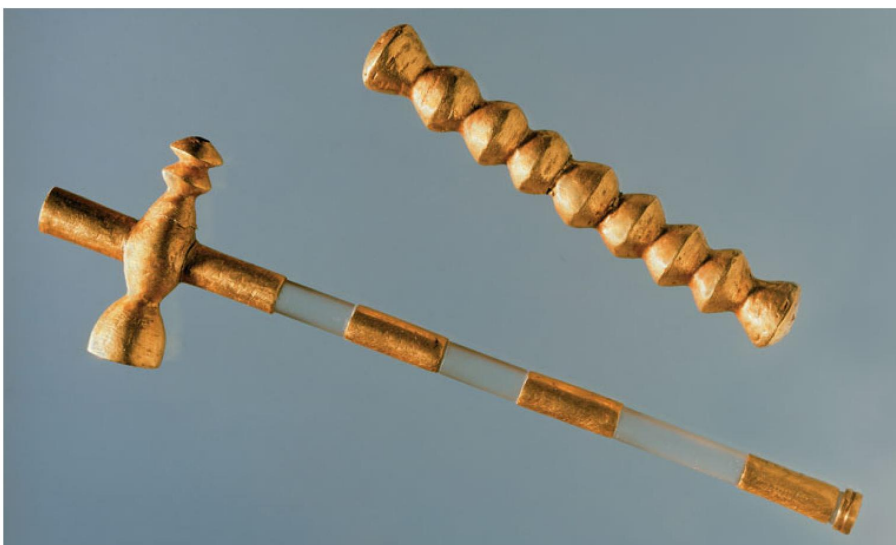
The development of bronze, especially for weapons such as daggers and short swords, changed the peoples of Europe in fundamental ways. While copper ore was widely available across Europe, either as surface outcrops or easily mined, the tin that was required to make bronze had a much more limited natural distribution and

often required extraction by mining. Power bases shifted within communities as the resources needed to make bronze were not widely available to all. Trade and intergroup contacts across the continent and into the Near East increased, and bronze objects circulated as prized goods.

ROCK CARVINGS

Bronze Age artistry is not limited to metalworking; indeed, some of the most exciting imagery of the period is found in the rock art of northern Europe. For a thousand years starting around 1500 BCE people created designs by scratching outlines and pecking and grinding the surface of exposed rock faces using stone hammers and sometimes grains of sand as an abrasive. The Swedish region of northern Bohuslän is especially rich in rock carvings dating to this period; archaeologists have recorded over 40,000 individual images from more than 1,500 sites. The range of motifs is wide, including boats, animals (bulls, elk, horses, a few snakes, birds, and fish), people (mostly sexless, some with horned helmets, but also men with erect penises), wheeled vehicles and ploughs (and unassociated disks, circles, and wheels), and weapons (swords, shields, and helmets). Within this range, however, the majority of images are boats (FIG. 1-30), not just in Sweden but across northern Europe. Interestingly, the boat images are unlike the boats that archaeologists have excavated. The rock-engraved images do not have masts, nor are they the dugouts or log boats that are known from this period. Instead they represent boats made from wooden planks or with animal skins.

What is the meaning of these boat images? Most agree that the location of the majority of the rock art near current or past shorelines is the critical clue to their meaning. Archaeologist Richard Bradley suggests that rock art connects sky, earth, and sea, perhaps visualizing the community's view of the three-part nature of the universe. Others suggest that the art is intentionally located



1-29 • GOLD SCEPTERS

From Varna, Bulgaria. 3800 BCE. National Museum of History, Sofia, Bulgaria.



1-30 • ROCK ART: BOAT AND SEA BATTLE
Fossum, northern Bohuslän, Sweden. Bronze Age, c. 1500–500 BCE.

between water and earth to mark a boundary between the world of the living and the world of spirits. In this view, the permanent character of the rock, grounded deep in the earth, provided a means of communication and connection between distant and distinct worlds.

For people of the prehistoric era, representational and abstract art had critical symbolic importance, justifying the labor required

to paint in the deep recesses of caves, move enormous stones great distances, or create elaborately ornamented masks. Prehistoric art and architecture connected the earthly with the spiritual, established social power hierarchies, and perhaps helped people learn and remember information about the natural world that was critical for their survival. This art represents one of the fundamental elements of our development as a human species.

THINK ABOUT IT

- 1.1** Prehistoric artists created representations of human figures using a variety of media, styles, and techniques. Compare two examples drawn from different times and places by discussing the relationship between style or technique and expressive character.
- 1.2** What are the common motifs found in cave paintings such as those at Lascaux and Altamira? Summarize the current theories about their original meaning and purpose.
- 1.3** Many examples of prehistoric art and architecture express relationships between the living and the dead. Discuss how this theme is evoked in one work of architecture and one example of sculpture discussed in this chapter. Why do you think this theme was so important?
- 1.4** How did the emergence of ceramics and metallurgy transform art making in the Neolithic era? Select and analyze a work discussed in the chapter that was made in one of these new media and discuss the unique properties of the medium.

CROSSCURRENTS

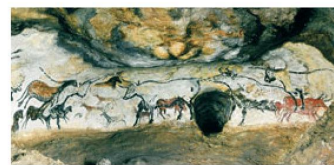


FIG. 1-11



FIG. 1-21

Although we have limited information about the meanings prehistoric people associated with sacred spaces, art historians and archaeologists have linked these two famous sites with specific social practices and rituals. Discuss and compare current interpretations of Lascaux and Stonehenge, evidence as well as conclusions.

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